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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,113	11/04/2005	Paolo Giordani	H 5716-I	2619

38857 7590 01/20/2011

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EXAMINER	
ZHENG, LOIS L	
ART UNIT	PAPER NUMBER
1733	

NOTIFICATION DATE	DELIVERY MODE
01/20/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/531,113	GIORDANI ET AL.	
	Examiner	Art Unit	
	LOIS ZHENG	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 18, 26, 32, 36, 38 and 41 are amended in view of applicant's response filed 8 November 2010. New claims 43-46 are added. Claims 1-17 are canceled. Therefore, claims 18-46 are currently under examination.

Status of Previous Rejections

2. The rejection of claims 32-35 under under 35 U.S.C. 103(a) as being unpatentable over Fortunati et al. WO 00/15880(Fortunati), as evidenced by Bianchi US 5,908,511 (Bianchi), and further in view of JP61-276999(JP'999) is withdrawn in view of applicant's claim amendments filed 8 November 2010.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 18-21, 23-31, 36-44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortunati et al. WO 00/15880(Fortunati), as evidenced by Bianchi US 5,908,511 (Bianchi), and further in view of JP61-276999(JP'999).

Fortunati teaches a steel pickling solution comprising 20-140g/l sulfuric acid(page 4 lines 15-16), 15-80g/l of Fe(III) ions(page 4 lines 16-17), 1-20g/l of hydrofluoric acid(page 8 lines 10-11, page 9 lines 7-8), 1-20g/l of chloride ions(page 8 lines 7-10), and hydrogen peroxide stabilizer (page 6 lines 30-32, page 7 lines 4-10).

Regarding claims 18 and 36, the amounts of sulfuric acid and Fe(III) ions in the pickling solution of Fortunati read on the claimed amounts of sulfuric acid and Fe(III). The amounts of hydrofluoric acid and chloride ions in the pickling solution of Fortunati overlap the claimed amounts of hydrofluoric acid and chloride ions. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed HF and Cl ion amount ranges from the disclosed ranges of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its disclosed HF and Cl ion amount ranges.

In addition, since hydrofluoric acid complexes Fe(III) ions as evidence by Bianchi(col. 3 lines 33-34), the examiner concludes that the pickling solution of Fortunati contains the claimed fluoride ions and/or hydrofluoric acid such that 1-100% of Fe(III) are present in the form of fluoride complexes as claimed.

However, Fortunati does not explicitly teach the claimed complex fluoro acids of Si.

JP'999 teaches adding fluorosilicate to a sulfuric acid based steel pickling solution in order to increase pickling rate(abstract). JP'999 further teaches using 10g/l and 15g/l of sodium fluorosilicate(i.e. which provides fluorosilicate anions) in Tables 1-2.

Regarding claim 18, it would have been obvious to one of ordinary skill in the art to have incorporated 10-15g/l of sodium fluorosilicate of JP'999, which provides 53.2-79.3mmol/l of fluorosilicate anions, into the pickling solution of Fortunati in order to increase the pickling rate as taught by JP'999.

Regarding claim 19, the Fe((III) concentration in the pickling solution of Fortunati in view of JP'999 reads on the claimed Fe(III) concentration. Even though Fortunati in view of JP'999 teach a fluorosilicate concentration that is lower than claimed, the teaching of JP'999 shows that the concentration of fluorosilicate salt is a result effective variable because it affects pickling rate. Therefore, one of ordinary skill in the art would have found it obvious to have varied the concentration of the fluorosilicate salt via routine optimization in order to achieve desired pickling rate.

Regarding claim 20, Fig. 5 of Fortunati appears to show a redox potential that overlaps the claimed redox potential. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed redox potential from the disclosed potential of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its' disclosed redox potential range. Alternatively, since Fortunati in view of JP'999 teaches a pickling solution that is substantially similar to the claimed pickling solution, one of ordinary skill in the art would have expected substantially similar redox potential as claimed in the pickling solution of Fortunati in view of JP'999.

Regarding claim 21, Fortunati teaches the claimed sulfuric acid.

Regarding claim 23, the teachings of Fortunati in view of JP'999 discloses a steel pickling process comprising the claimed pickling solution contacting and redox potential managing steps.

Regarding claim 24, Fortunati further teaches that is pickling process is a continuous process performed electrolytically(page 4 lines 26-30), which implies the claimed relative movement between the pickling solution and the steel surface.

Regarding claim 25, Fortunati further teaches the claimed formation of Fe(II) ions and its at least partial oxidation to Fe(III)(page 6 lines 25-32).

Regarding claim 26, the instant claim is rejected for the same reasons set forth in the rejection of claims 18 and 23 above. In addition, the amended preamble "for chemical pickling of steel" is directed to intended use for the claimed process, and does not provide process limitations that patentably distinguish the instantly claimed process from the pickling process of Fortunati as evidenced by Bianchi and further in view of JP'999.

Regarding claim 27, Fortunati does not teach other oxidizing agent than Fe(III).

Regarding claim 28, the chloride ions concentration in the pickling solution of Fortunati overlaps the claimed chloride ions concentration range. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed Cl ion concentration range from the disclosed range of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its disclosed Cl ion concentration range.

Regarding claims 29-30, the instant claims are rejected for the same reasons set forth in the rejection of claims 20 and 23-24 above.

Regarding claim 31, Fortunati further teaches that the preferred concentration range for Fe(III) ions is 20-50g/l(page 4 line 17), which reads on the claimed Fe(III) ion

concentration. In addition, the HF concentration in the pickling solution of Fortunati overlaps the claimed HF concentration range. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed HF concentration range from the disclosed range of Fortunati would have been obvious to one skilled in the art since Fortunati teaches the same utilities in its disclosed HF concentration range.

Regarding claims 37-42, the instant claims are rejected for the same reasons set forth in the rejection of claim 18 above. In addition, due to the presence of HF, the pickling solution of Fortunati in view of JP'999 would have had at least some free fluoride ions as claimed.

Regarding claims 43-44 and 46, Fortunati teaches chloride ions are added when treating ferritic stainless steels and fluoride ions are added when treating austenitic or super stainless steels or super alloys(page 8 lines 7-11). Therefore, the coating solution of Fortunati for treating ferritic stainless steel can be free of fluoride ions, which reads on the claimed less than 1g/l of free fluoride ions.

5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fortunati and further in view of JP'999, and further in view of Bianchi.

The teachings of Fortunati in view of JP'999 are discussed in paragraph 4 above. However, Fortunati in view of JP'999 do not explicitly teach the claimed pickling solution is in the form a gel or a paste.

Bianchi teaches a steel pickling solution comprising sulfuric acid, hydrofluoric acid, Fe(III) ions, and hydrogen peroxide stabilizer(col. 3 lines 27-60 and col. 4 lines 13-19). Bianchi further teaches that the pickling solution further comprises organic material

such as non-ionic surfactants acting as wetting agents, emulsifiers, etc. to improve pickling(col. 5 lines 53-62).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated organic additives such as wetting agents and emulsifiers as taught by Bianchi into the pickling solution of Fortunati in view of JP'999 in order to improve pickling as taught by Bianchi. Based on the broadest reasonable interpretation, the emulsifier containing pickling solution of Fortunati in view of JP'999 and Bianchi is in the form of a gel or a paste as claimed.

6. Claims 32-35 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/070781 A2, whose English equivalent is Kolberg et al. US 2004/0065389 A1(Kolberg), and further in view of Bianchi.

Kolberg teaches a process for passivating a metal surface comprising treating the metal surface with a coating solution comprising 4-60g/l of phosphate ions (paragraph [0046]) and 0.01-30g/l of hydrogen peroxide(paragraph [0062]). Kolberg's coating solution further comprises silicon hexafluoride and the total fluoride in free and/or bound form is preferably in the range from 0.05-2g/l(paragraphs [0058-0059])

Regarding claim 32 and 34-35, Kolberg further teaches that its coating process can be applied to steel surfaces(paragraph [0079]) and the coated metal surface may be rinsed(paragraph [0093]).

The phosphate ions as taught by Kolberg imply the claimed strong acid (i.e. phosphoric acid). The concentration of phosphate ions and hydrogen peroxide as taught by Kolberg reads on the claimed strong acid and oxidizing agent concentrations.

The silicon hexafluoride as taught by Kolberg is a fluoride in bound form and its implied amount would have at least overlapped the claimed complex fluoroacid amount as recited in claim 32. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05.

Although Kolberg does not explicitly teach that the coating process is applied to stainless steel surfaces, one of ordinary skill in the art would have found it obvious to have applied Kolberg's process to stainless steel surfaces with expected success since Kolberg teaches that its process may be applied to steel surfaces, which includes claimed stainless steel surfaces.

Although Kolberg teaches that the metal surface maybe pickled prior to the coating step(paragraph [0089]), Kolberg does not explicitly teach that the metal surface is chemically pickled.

The teachings of Bianchi are discussed in paragraph 5 above.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the chemical pickling process as taught by Bianchi into the pickling step in the process of Kolberg in order to achieve superior pickling results as taught by Bianchi (col. 3 lines 6-14).

Regarding claim 33, the hydrogen peroxide and the phosphoric acid in the coating solution of Kolberg reads on the claimed oxidizing agent and hydrogen peroxide stabilizer.

Regarding claim 45, since Kolberg teaches that the total fluoride in free or bound form is preferably in the range of 0.05-2g/l, the free fluoride ions in the coating solution

of Kolberg would not have exceeded 2g/l, which overlaps the claimed free fluoride ions of less than 1g/l. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05.

Response to Arguments

7. Applicant's arguments filed 8 November 2010 have been considered but they are not persuasive.

In the remarks, applicant mainly argues that both Fortunati and JP'999 are concerned with electrolytic pickling processes, not a chemical pickling process as claimed.

The examiner does not find applicant's argument convincing. Independent claims 18 and 36 are directed to a process solution(i.e. composition claims). The independent claim 26 is directed to a process. The preambles in these claims "for chemically pickling of steel" merely states the intended use for the claimed process solution and the claimed process. The intended use languages do not contain composition or process limitations that distinguish from the solution or the process of prior art of record set forth above, therefore, do not render the instant claims patentable.

Applicant further argues that Fortunati teaches higher amounts of fluoride ions than claimed in its chemical pickling process.

As set forth above, the electrolytic pickling solution of Fortunati in view of JP'999 comprises the same pickling components in substantially similar amounts as claimed. Therefore, the claimed pickling solution does not distinguish from the electrolytic pickling solution of Fortunati in view of JP'999. Additionally, the chemical pickling has

not been positively recited in the body of the process claims. Furthermore, independent process claim 26 uses open-ended transitional phrase "comprising" which does not exclude additional process steps such as application of electric current in the process of Fortunati in view of JP'999. Furthermore, since the pickling solution of Fortunati in view of JP'999 are substantially similar, one of ordinary skill in the art would have expected at least some chemical pickling to occur in the process of Fortunati in view of JP'999.

Applicant's argument regarding claim 32 is moot in view of the new ground of rejection set forth in paragraph 7 above, in response to applicant's claim amendment filed 8 November 2010.

Applicant's argument regarding new claims 43-46 is moot in view of the new ground of rejection set forth in paragraphs 5 and 7 above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571) 272-1248. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/
Supervisory Patent Examiner, Art Unit 1733

LLZ